

**CENTER FOR DRUG EVALUATION AND  
RESEARCH**



***APPLICATION NUMBER:***  
**21-282**

**STATISTICAL REVIEW(S)**

**STATISTICAL REVIEW AND EVALUATION  
CLINICAL STUDIES  
(STABILITY)**

Date	
NDA #	21282
Applicant	Adams
Name of Drug	Mucinex
Indication	
Document Reviewed	Sponsor's cover letter dated 1/11/02 Vol. 1 (in response to FDA approvable letter of 12/21/01) Section: Exhibits, K and L (1/11/02) Sponsor's cover letter dated 5/8/02 Vol. 1 (in response to FDA teleconference of 3/8/02) Section: Exhibits, K and L (5/8/02) Data sets reviewed: Section Exhibits, K and L (1/11/02, 5/8/02), manually entered into Excel workbook by this reviewer for analysis purpose Reviewer's analysis data set can be viewed at: <u><a href="http://ereview/scripts/broker.exe?service=default&amp;program=e_x8p_ssdsview.sas&amp;debug=2&amp;libref=OUTLIB&amp;memsel=Mucin_ex">http://ereview/scripts/broker.exe?service=default&amp;program=e_x8p_ssdsview.sas&amp;debug=2&amp;libref=OUTLIB&amp;memsel=Mucin_ex</a></u>
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Key Words	Stability

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## Reviewer's Stability Analysis of Mucinex

### Reviewer's Initial analysis

The analyses in this section were later updated as Reviewer's Additional Stability Analysis of Mucinex upon request from CMC reviewer, Dr. Eugenia Nashed on 6/28/02.

Table 1 describes the batches' characteristics and the upper and lower specifications considered in estimating the expiry-dating period.

Table 1. Description of stability analysis for Mucinex

Test parameter	Temperature	Humidity	Strength	Package	Lower spec	Upper spec
Assay	25°C	60%	—	600mg	—	—
Friability	25°C	60%	—	600mg	—	—
Hardness	25°C	60%	—	600mg	—	—

The following tables show linear regression lines on which the estimations of the expiry-dating period are based. The estimates appear in the last columns of these tables. The time unit is month.

Table 3. Estimate of expiry dating period based on assay (600mg, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
$Y = 100.2309 - 0.0053 \times \text{Time}$	POOLED	—
	Minimum	—

Table 5. Estimate of expiry dating period based on friability (600mg, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
_____	PB320S	_____
_____	PB321S	_____
_____	PB322S	_____
_____	Minimum	_____

\*: See Table A-1, Appendix for data listing.

Please note that for the friability, 600mg, the minimum estimate is calculated to be —. The batches had inconsistent friability measurements: Two of the three batches, PB320S and PB322S, had all observations at \_\_\_\_\_ while the third batch, PB321S had most observations ranging from \_\_\_\_\_. See Table A-1 in Appendix.

Table 7. Estimate of expiry dating period based on hardness (600mg, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
_____	PB320S	_____
_____	PB321S	_____
_____	PB322S	_____
_____	Minimum	_____

## Results from Initial Analysis

Table 8 summarizes the estimates based on assay, friability, and hardness. For friability, the minimum estimate is calculated to be — which might be a result of possibly inconsistent data among the batches. However, without the friability data, with 95% confidence, this drug is expected to remain within the specification limits for at least: — months.

**Table 8. Estimated expiry-dating period: Summary**

Test parameter	Strength	Condition	Estimated expiry-dating period (in month)
<b>Assay</b>			
Assay	600mg	25°C, 60%RH	—
<b>Friability</b>			
Friability	600mg	25°C, 60%RH	—
<b>Hardness</b>			
Hardness	600mg	25°C, 60%RH	—
		Minimum	—

\*\*: To facilitate the CMC reviewer to further examine friability, the data for friability, 600mg are displayed in the Appendix.

## **Reviewer's Additional Stability Analysis of Mucinex**

The additional stability analyses were done using the 600mg tablet data dated 5/8/02. The following points highlight the setups of these analyses:

The data under accelerated condition ( $40^{\circ}\text{C}$ , 75%RH) and normal condition ( $25^{\circ}\text{C}$ , 60%RH) were analyzed separately with one exception: The data for bottles of 20 and 40 and for both storage conditions were analyzed together. This consideration was based on the fact that there was only one batch for each condition and package. With this combination, four batches were included in the statistical analysis. Dr. Nashed and this reviewer considered such an arrangement was reasonable.

To circumvent difficulty in labeling the mixtures of different temperatures, RH, and package types in report, the storage temperature was indicated as "91," the RH, "92," and the package type. The specifications in this additional analysis were the same as those in the initial analysis, except that, now, the specifications for ASSAY were

Similar to the initial analysis, the following tables show linear regression lines on which the estimations of the expiry-dating period are based. The estimates appear in the last columns of these tables. The time unit is month.

The graphs for the additional analyses can be found in Figures A-7 to A-21, Appendix.

Table 9. Estimate of expiry dating period based on assay (600mg, Bottle of 2, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
_____	1E0804S	_____
_____	1G0805S	_____
_____	1G0806S	_____
_____	~MIN~	_____

Table 10. Estimate of expiry dating period based on assay (600mg, Bottle of 2, 40°C, 75%RH)

Fitted Line	Batch	Estimated Expiry Period
_____	1E0804S	_____
_____	1G0805S	_____
_____	1G0806S	_____
_____	~MIN~	_____

Table 11. Estimate of expiry dating period based on assay (600mg, Bottles of 20 and 40, 40°C,

Fitted Line	Batch	Estimated Expiry Period
_____	1E804FA	_____
_____	1E804FR	_____
_____	1E804GA	_____
_____	1E804GR	_____
_____	~MIN~	_____

Table 12. Estimate of expiry dating period based on assay (600mg, Bottle of 100, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
$Y = 98.7389 + 0.0722 \times \text{Time}$	POOLED	_____
_____	~MIN~	_____

Table 13. Estimate of expiry dating period based on assay (600mg, Bottle of 100, 40°C, 75%RH)

Fitted Line	Batch	Estimated Expiry Period
$Y = 99.1283 - 0.0868 \times \text{Time}$	POOLED	_____
_____	~MIN~	_____

Table 14. Estimate of expiry dating period based on friability (600mg, Bottle of 2,

Fitted Line	Batch	Estimated Expiry Period
	1E0804S	
	1G0805S	
	1G0806S	
	~MIN~	

Table 15. Estimate of expiry dating period based on friability (600mg, Bottle of 2; 40°C, 75%RH)

Fitted Line	Batch	Estimated Expiry Period
	1E0804S	
	1G0805S	
	1G0806S	
	~MIN~	

Table 16. Estimate of expiry dating period based on friability (600mg, Bottles of 20 and 40, 40°C,

Fitted Line	Batch	Estimated Expiry Period
$Y = 0.0603 + 0.0103 \times \text{Time}$	POOLED	
	~MIN~	

Table 17. Estimate of expiry dating period based on friability (600mg, Bottle of 100, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
$Y = 0.0444 + 0.0111 \times \text{Time}$	POOLED	
	~MIN~	

Table 18. Estimate of expiry dating period based on friability (600mg, Bottle of 100, 40°C, 75%RH)

Fitted Line	Batch	Estimated Expiry Period
	1E0804A	
	1E0805A	
	1E0806A	
	~MIN~	

Table 19. Estimate of expiry dating period based on hardness (600mg, Bottle of 2, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
_____	1E0804S	_____
_____	1G0805S	_____
_____	1G0806S	_____
_____	~MIN~	_____

Table 20. Estimate of expiry dating period based on hardness (600mg, Bottle of 2, \_\_\_\_\_)

Fitted Line	Batch	Estimated Expiry Period
$Y = 17.8742 + 0.1635 \times \text{Time}$	POOLED	_____
_____	~MIN~	_____

Table 21. Estimate of expiry dating period based on hardness (600mg, Bottles of 20 and 40, 40°C, 75%RH and 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
_____	1E804FA	_____
_____	1E804FR	_____
_____	1E804GA	_____
_____	1E804GR	_____
_____	~MIN~	_____

Table 22. Estimate of expiry dating period based on hardness (600mg, Bottle of 100, 25°C, 60%RH)

Fitted Line	Batch	Estimated Expiry Period
_____	1E0804A	_____
_____	1E0805A	_____
_____	1E0806A	_____
_____	~MIN~	_____

Table 23. Estimate of expiry dating period based on hardness (600mg, Bottle of 100, 40°C, 75%RH)

Fitted Line	Batch	Estimated Expiry Period
$Y = 17.7736 + 0.2610 \times \text{Time}$	POOLED	_____
_____	~MIN~	_____

## Results from Additional Analysis

**Table 24. Estimated expiry-dating period: Summary of Reviewer's Additional Analyses**

Test parameter	Package	Strength	Condition	Estimated expiry-dating period (in month)
Assay	Bottle of 2	600mg	25°C, 60%RH	—
Assay	Bottle of 2	600mg	40°C, 75%RH	—
Assay	Bottles of 20 and 40	600mg	25°C, 60%RH and 40°C, 75%RH	—
Assay	Bottle of 100	600mg	25°C, 60%RH	—
Assay	Bottle of 100	600mg	40°C, 75%RH	—
Friability	Bottle of 2	600mg	25°C, 60%RH	—
Friability	Bottle of 2	600mg	40°C, 75%RH	—
Friability	Bottles of 20 and 40	600mg	25°C, 60%RH and 40°C, 75%RH	—
Friability	Bottle of 100	600mg	25°C, 60%RH	—
Friability	Bottle of 100	600mg	40°C, 75%RH	—
Hardness	Bottle of 2	600mg	25°C, 60%RH	—
Hardness	Bottle of 2	600mg	40°C, 75%RH	—
Hardness	Bottles of 20 and 40	600mg	25°C, 60%RH and 40°C, 75%RH	—
Hardness	Bottle of 100	600mg	25°C, 60%RH	—
Hardness	Bottle of 100	600mg	40°C, 75%RH	—
			Minimum	

Table 24 summarizes the estimates based on assay, friability, and hardness—using sponsor's data dated 5/8/02. Note that the shortest estimate is — which is resulting from the analyses of assay and hardness based on data combining package types (bottles of 20 and 40), and storage conditions (25°C, 60%RH and 40°C, 75%RH). The next to the shortest estimate is — resulting from the analysis based on friability under condition, 40°C, 75%RH for bottle of 2.

## Appendix

Table A-1. Data (dated 1/11/02 with 24-month updated on 5/8/02) listing for FRIABIL 600mg 250C 60%RH

By-variable (Internal-use variable)	Alpha Level	Number of Sides of Confidence Limits	Lower Spec. Limit	Upper Spec. Limit	Batch	Time (in months)	Measurement
[22111]	0.050	1	.	-	PB320S	0	-
[22111]	0.050	1	.	-	PB320S	3	-
[22111]	0.050	1	.	-	PB320S	6	-
[22111]	0.050	1	.	-	PB320S	9	-
[22111]	0.050	1	.	-	PB320S	12	-
[22111]	0.050	1	.	-	PB320S	18	-
[22111]	0.050	1	.	-	PB320S	24	-
[22111]	0.050	1	.	-	PB321S	0	-
[22111]	0.050	1	.	-	PB321S	3	-
[22111]	0.050	1	.	-	PB321S	6	-
[22111]	0.050	1	.	-	PB321S	9	-
[22111]	0.050	1	.	-	PB321S	12	-
[22111]	0.050	1	.	-	PB321S	18	-
[22111]	0.050	1	.	-	PB321S	24	-
[22111]	0.050	1	.	-	PB322S	0	-
[22111]	0.050	1	.	-	PB322S	3	-
[22111]	0.050	1	.	-	PB322S	6	-
[22111]	0.050	1	.	-	PB322S	9	-
[22111]	0.050	1	.	-	PB322S	12	-
[22111]	0.050	1	.	-	PB322S	18	-
[22111]	0.050	1	.	-	PB322S	24	-

Source: Exhibition K and L, vol. 1.

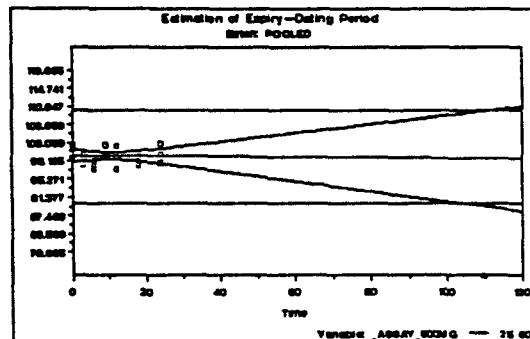
\*\*\*: Page 4-104, vol. 1 (1/11/2002)

\*\*\*\*: Page 4-219, vol. 1 (5/8/2002, 24-month update)

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## *Graphs from Initial Analyses*

**Figure A-2. ASSAY, 600MG**



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Figure A-4. FRIABIL, 600MG, ~25°C, 60%RH

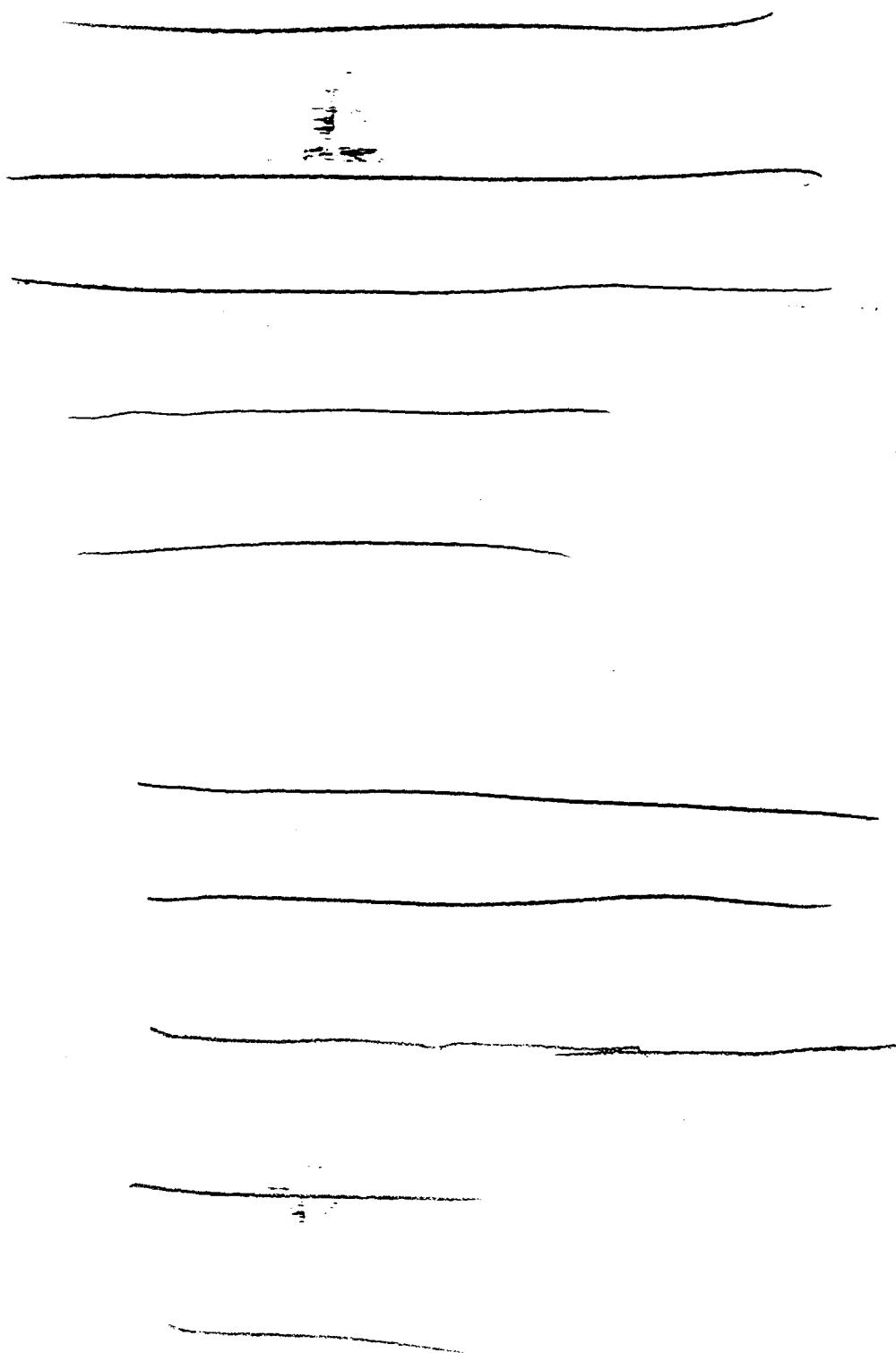
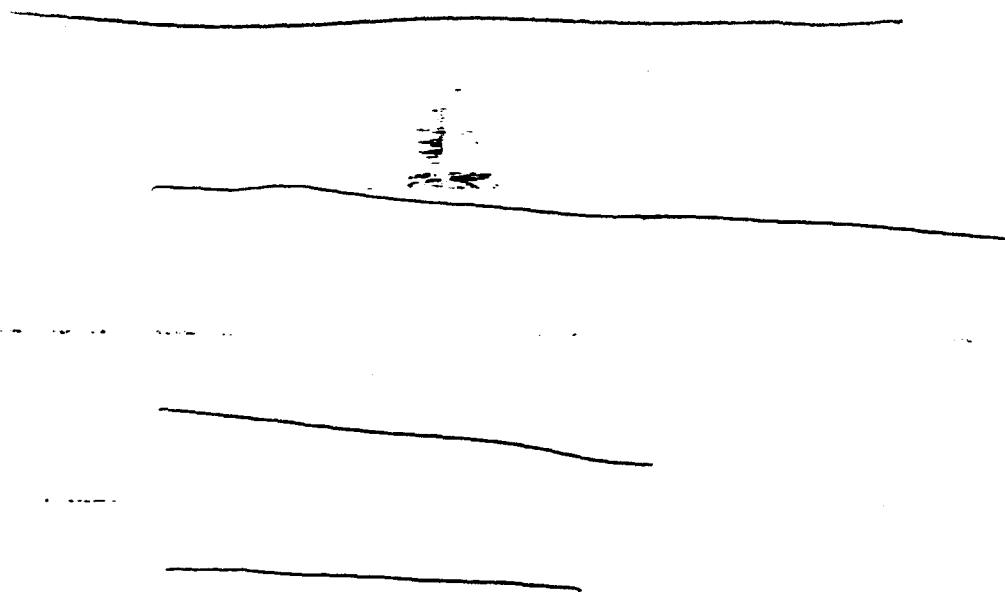
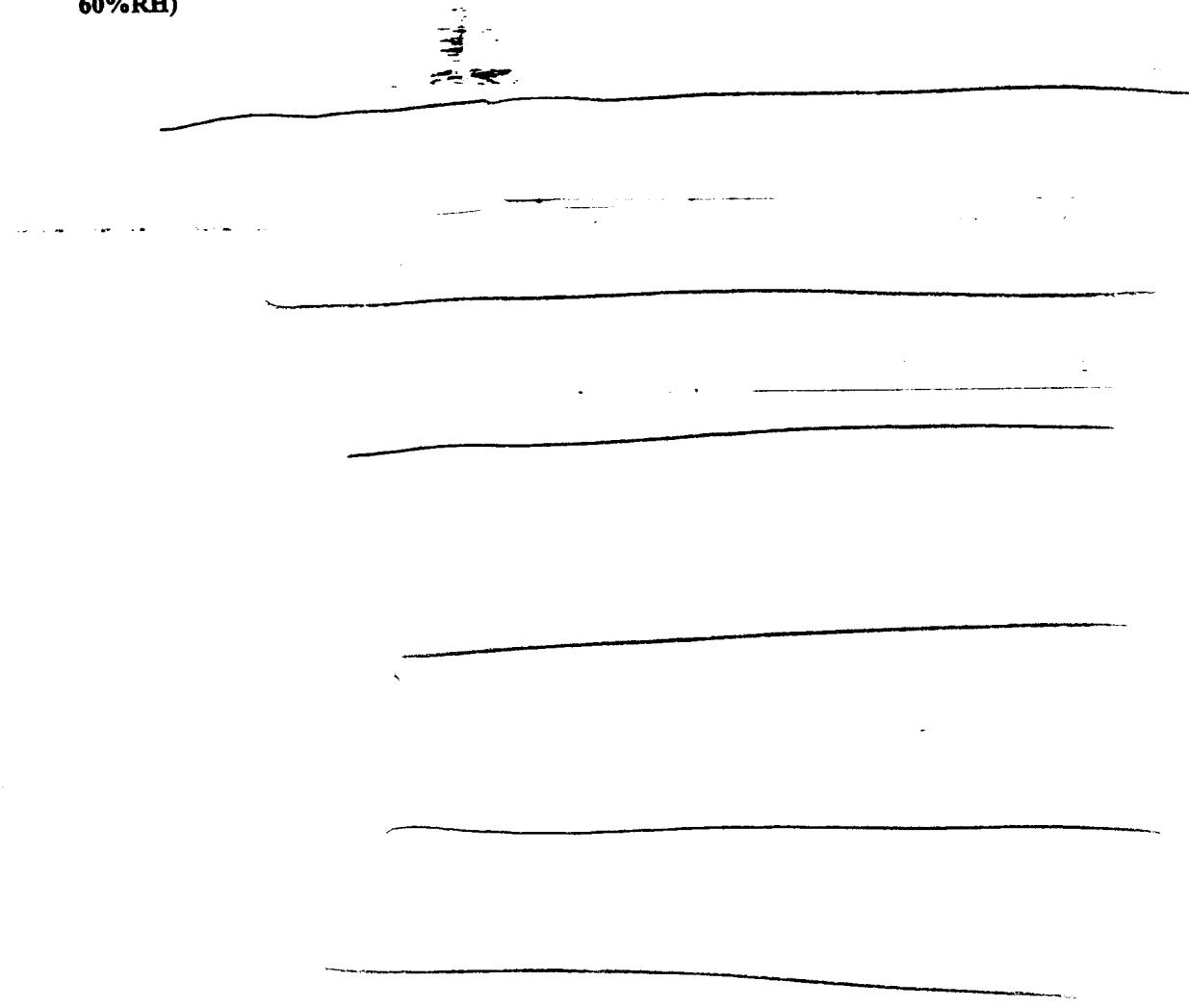


Figure A-6. HARD, 600MG, — , 25°C, 60%RH



## **Graphs from additional analysis**

**Figure A-7. Estimate of expiry dating period based on assay (600mg, Bottle of 2, 25°C, 60%RH)**



**Figure A-8. Estimate of expiry dating period based on assay (600mg, Bottle of 2, 40°C, 75%RH)**

Figure A-9. Estimate of expiry dating period based on assay (600mg. Bottles of 20 and 40,

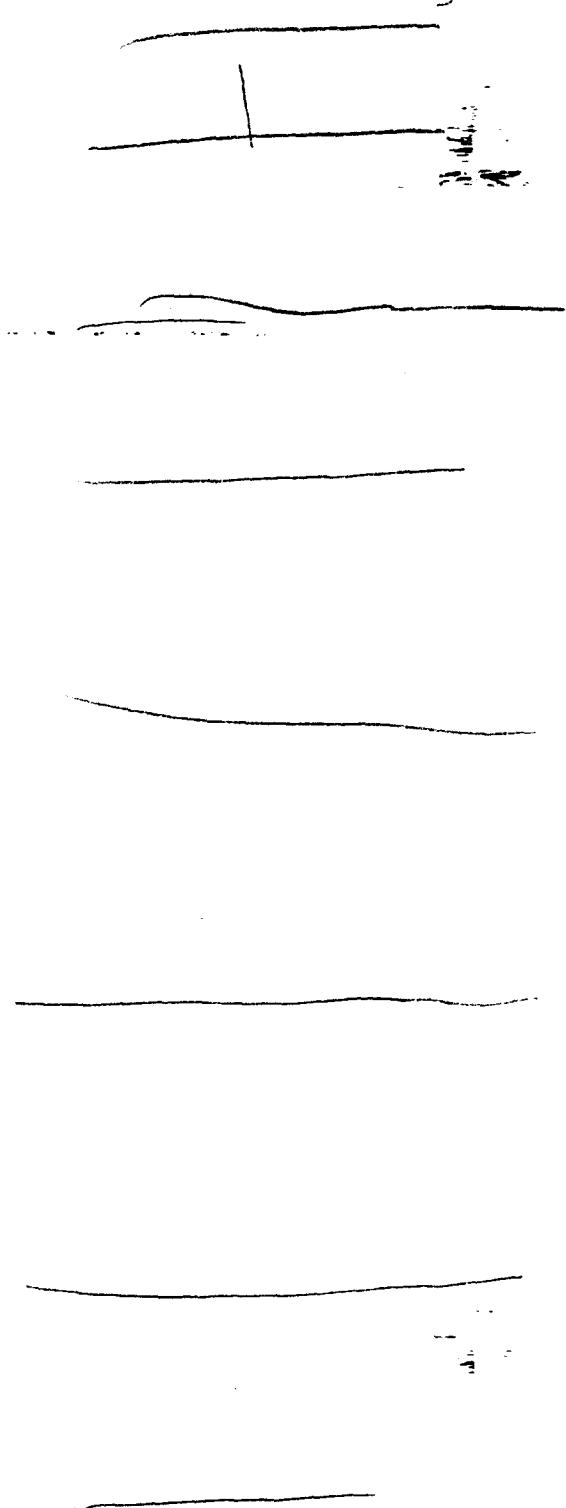


Figure A-10. Estimate of expiry dating period based on assay (600mg, Bottle of 100, 25°C, 60%RH)

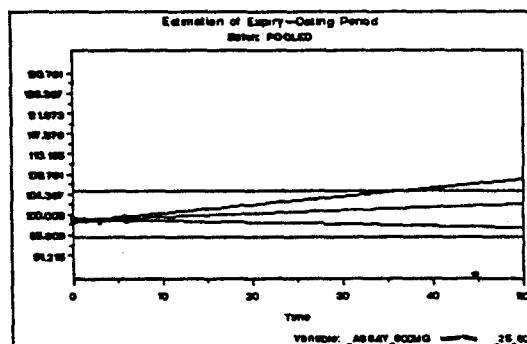
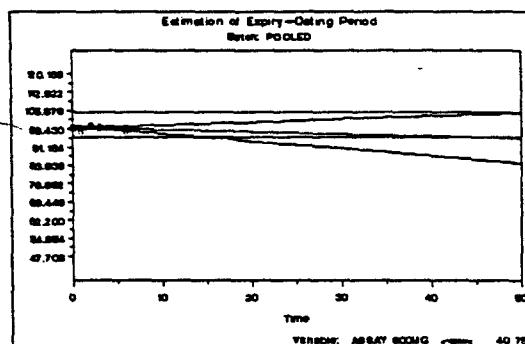
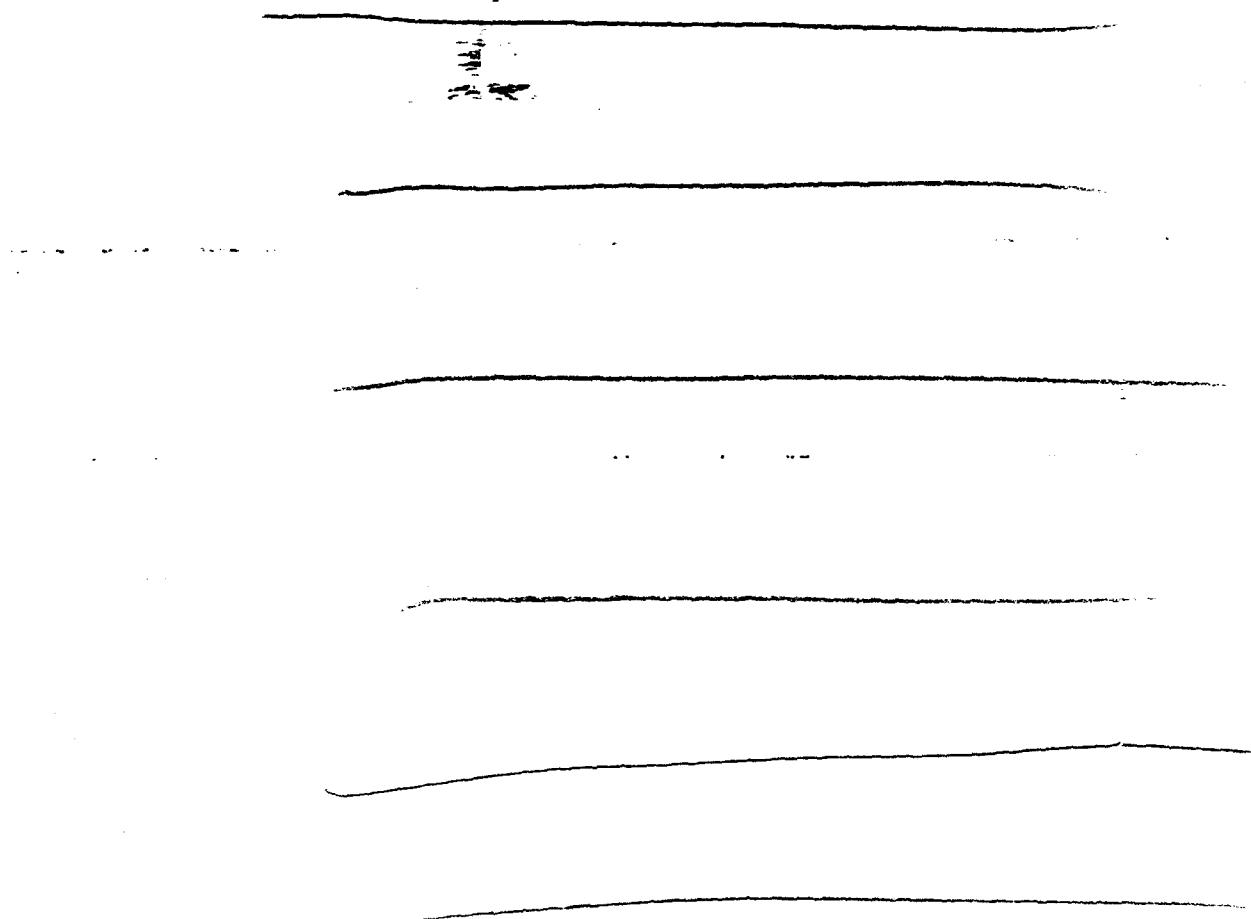


Figure A-11. Estimate of expiry dating period based on assay (600mg, Bottle of 100, 40°C, 75%RH)



**Figure A-12. Estimate of expiry dating period based on friability (600mg, Bottle of 2, 25°C, 60%RH)**



**Figure A-13. Estimate of expiry dating period based on friability (600mg, Bottle of 2, 40°C, 75%RH)**

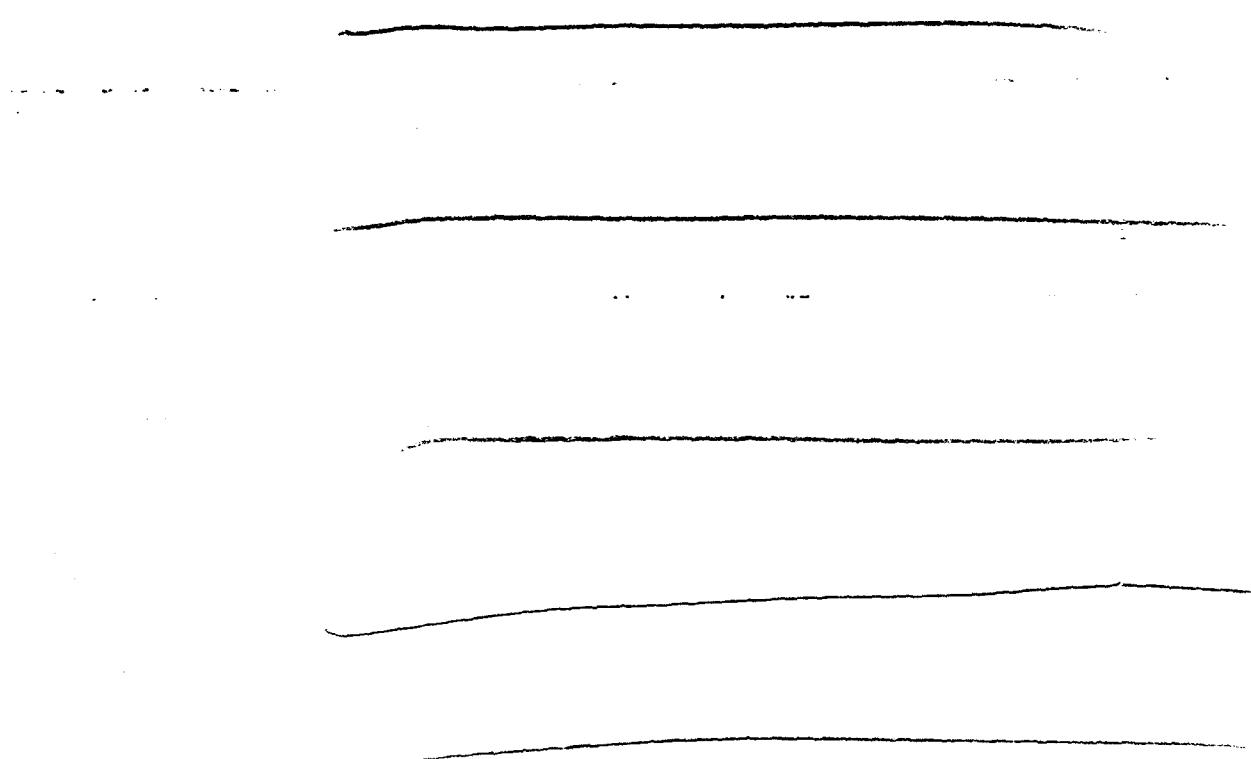


Figure A-14. Estimate of expiry dating period based on friability (600mg, Bottles of 20 and 40, 40°C, 75%RH and 25°C, 60%RH)

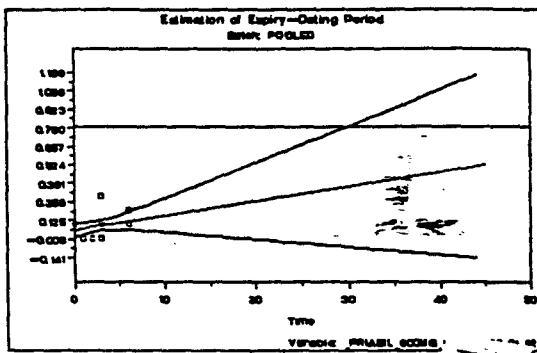


Figure A-15. Estimate of expiry dating period based on friability (600mg, Bottle of 100, 25°C, 60%RH)

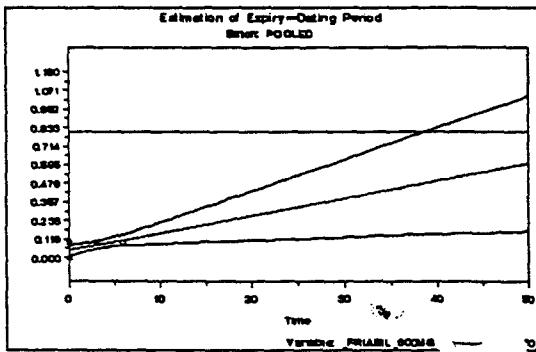
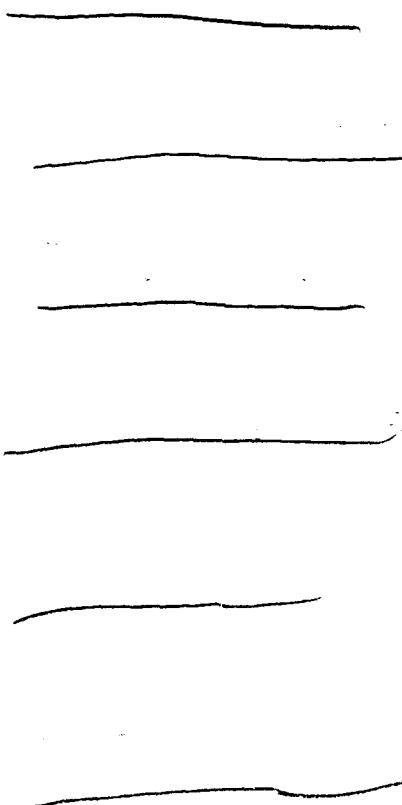
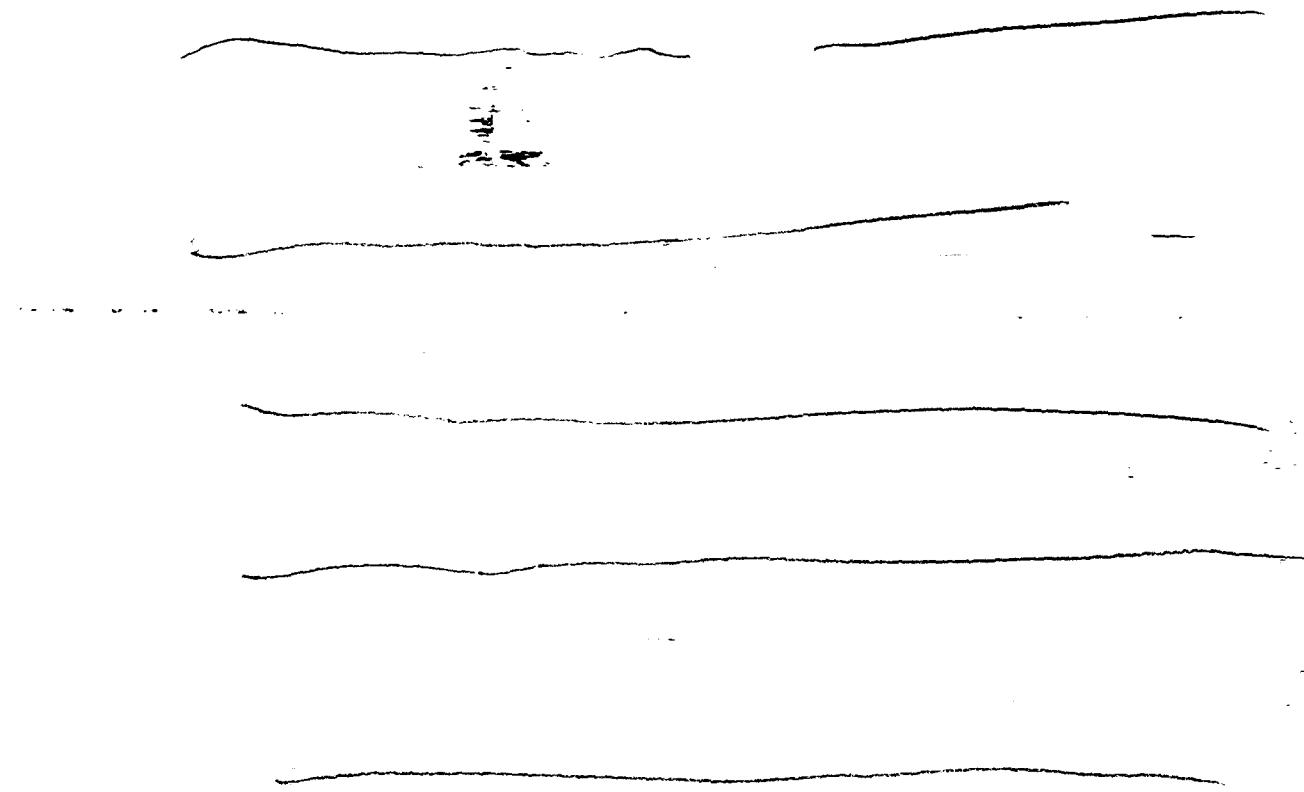


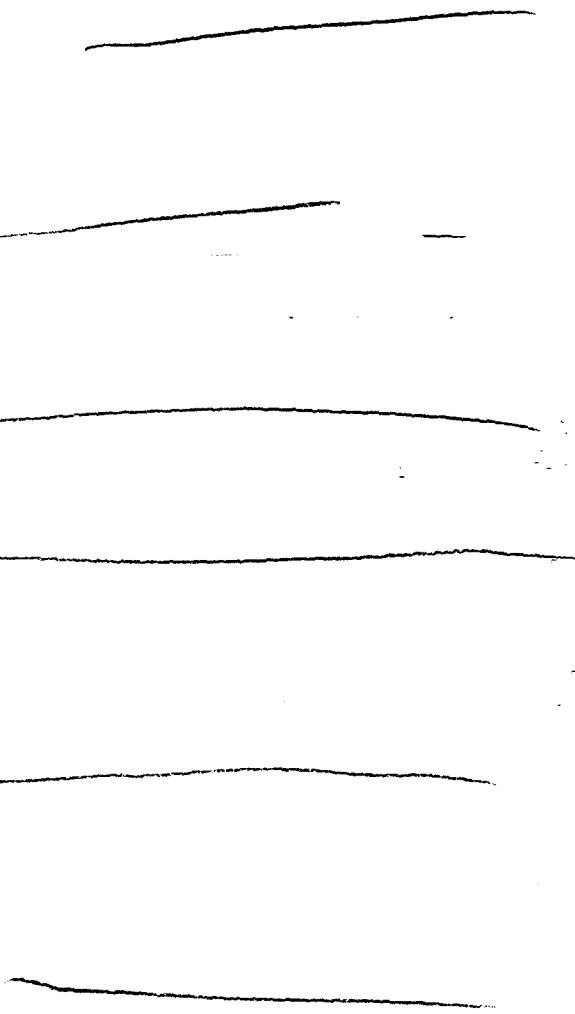
Figure A-16. Estimate of expiry dating period based on friability (600mg, Bottle of 100, 40°C, 75%RH)



**Figure A-17. Estimate of expiry dating period based on hardness (600mg, Bottle of 2, 25°C, 60%RH)**



**Figure A-19. Estimate of expiry dating period based on hardness (600mg, Bottles of 20 and 40, 40°C, 75%RH and 25°C, 60%RH)**



**Figure A-18. Estimate of expiry dating period based on hardness (600mg, Bottle of 2, 40°C, 75%RH)**

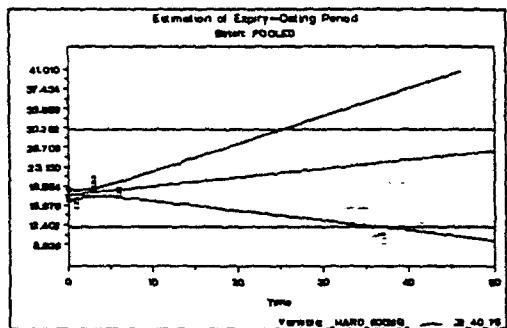


Figure A-20. Estimate of expiry dating period based on hardness (600mg, Bottle of 100, 25°C, 60%RH)

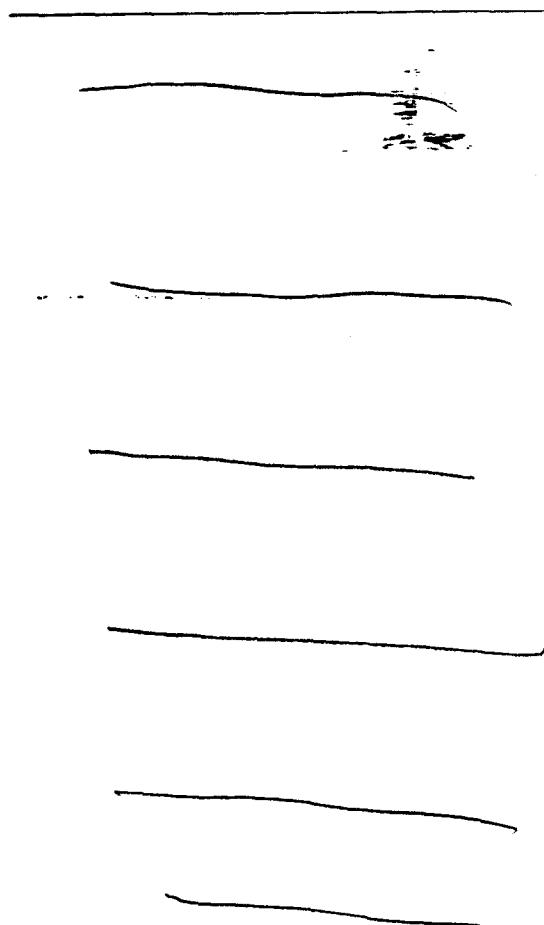
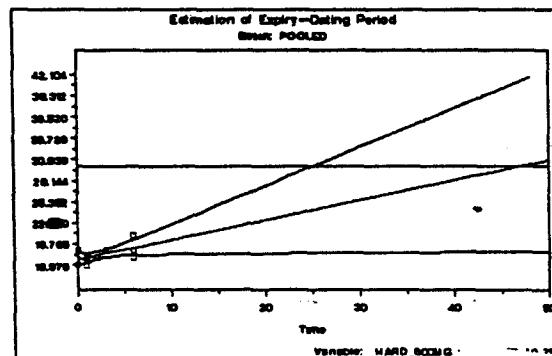


Figure A-21. Estimate of expiry dating period based on hardness (600mg, Bottle of 100, 40°C, 75%RH)



## Stability Data

**Table A-2 Data (dated 1/11/02 with 24-month updated on 5/8/02)**

TEST	TEMPER	RH	STRENGTH	PACKAGE	CLLEVEL	CLSID	LOWSPEC	UPPSPEC	BATCH	TIME	LEVEL
ASSAY	25	60	600mg		0.05	2			PB320S	0	
ASSAY	25	60	600mg		0.05	2			PB320S	3	
ASSAY	25	60	600mg		0.05	2			PB320S	6	
ASSAY	25	60	600mg		0.05	2			PB320S	9	
ASSAY	25	60	600mg		0.05	2			PB320S	12	
ASSAY	25	60	600mg		0.05	2			PB320S	18	
ASSAY	25	60	600mg		0.05	2			PB320S	24	
ASSAY	25	60	600mg		0.05	2			PB321S	0	
ASSAY	25	60	600mg		0.05	2			PB321S	3	
ASSAY	25	60	600mg		0.05	2			PB321S	6	
ASSAY	25	60	600mg		0.05	2			PB321S	9	
ASSAY	25	60	600mg		0.05	2			PB321S	12	
ASSAY	25	60	600mg		0.05	2			PB321S	18	
ASSAY	25	60	600mg		0.05	2			PB321S	24	
ASSAY	25	60	600mg		0.05	2			PB322S	0	
ASSAY	25	60	600mg		0.05	2			PB322S	3	
ASSAY	25	60	600mg		0.05	2			PB322S	6	
ASSAY	25	60	600mg		0.05	2			PB322S	9	
ASSAY	25	60	600mg		0.05	2			PB322S	12	
ASSAY	25	60	600mg		0.05	2			PB322S	18	
ASSAY	25	60	600mg		0.05	2			PB322S	24	
FRIABIL	25	60	600mg		0.05	2			PB320S	0	
FRIABIL	25	60	600mg		0.05	2			PB320S	3	
FRIABIL	25	60	600mg		0.05	2			PB320S	6	
FRIABIL	25	60	600mg		0.05	2			PB320S	9	
FRIABIL	25	60	600mg		0.05	2			PB320S	12	
FRIABIL	25	60	600mg		0.05	2			PB320S	18	
FRIABIL	25	60	600mg		0.05	2			PB320S	24	
FRIABIL	25	60	600mg		0.05	2			PB321S	0	
FRIABIL	25	60	600mg		0.05	2			PB321S	3	
FRIABIL	25	60	600mg		0.05	2			PB321S	6	
FRIABIL	25	60	600mg		0.05	2			PB321S	9	
FRIABIL	25	60	600mg		0.05	2			PB321S	12	
FRIABIL	25	60	600mg		0.05	2			PB321S	18	
FRIABIL	25	60	600mg		0.05	2			PB321S	24	
FRIABIL	25	60	600mg		0.05	2			PB322S	0	
FRIABIL	25	60	600mg		0.05	2			PB322S	3	
FRIABIL	25	60	600mg		0.05	2			PB322S	6	
FRIABIL	25	60	600mg		0.05	2			PB322S	9	
FRIABIL	25	60	600mg		0.05	2			PB322S	12	
FRIABIL	25	60	600mg		0.05	2			PB322S	18	
FRIABIL	25	60	600mg		0.05	2			PB322S	24	
HARD	25	60	600mg		0.05	2			PB320S	0	
HARD	25	60	600mg		0.05	2			PB320S	3	
HARD	25	60	600mg		0.05	2			PB320S	6	
HARD	25	60	600mg		0.05	2			PB320S	9	
HARD	25	60	600mg		0.05	2			PB320S	12	
HARD	25	60	600mg		0.05	2			PB320S	18	
HARD	25	60	600mg		0.05	2			PB320S	24	
HARD	25	60	600mg		0.05	2			PB321S	0	
HARD	25	60	600mg		0.05	2			PB321S	3	



## NDA 21-282, Mucinex, Stability

IMPUR	25	60 600mg	0.05	PB321S	18
IMPUR	25	60 600mg	0.05	PB322S	0
IMPUR	25	60 600mg	0.05	PB322S	3
IMPUR	25	60 600mg	0.05	PB322S	6
IMPUR	25	60 600mg	0.05	PB322S	9
IMPUR	25	60 600mg	0.05	PB322S	12
IMPUR	25	60 600mg	0.05	PB322S	18
IMPUR	25	60 600mg	0.05	PB320S	0
IMPUR	25	60 600mg	0.05	PB320S	3
IMPUR	25	60 600mg	0.05	PB320S	6
IMPUR	25	60 600mg	0.05	PB320S	9
IMPUR	25	60 600mg	0.05	PB320S	12
IMPUR	25	60 600mg	0.05	PB320S	18
IMPUR	25	60 600mg	0.05	PB321S	0
IMPUR	25	60 600mg	0.05	PB321S	3
IMPUR	25	60 600mg	0.05	PB321S	6
IMPUR	25	60 600mg	0.05	PB321S	9
IMPUR	25	60 600mg	0.05	PB321S	12
IMPUR	25	60 600mg	0.05	PB321S	18
IMPUR	25	60 600mg	0.05	PB322S	0
IMPUR	25	60 600mg	0.05	PB322S	3
IMPUR	25	60 600mg	0.05	PB322S	6
IMPUR	25	60 600mg	0.05	PB322S	9
IMPUR	25	60 600mg	0.05	PB322S	12
IMPUR	25	60 600mg	0.05	PB322S	18
IMPUR	25	60 600mg	0.05	PB320S	0
IMPUR	25	60 600mg	0.05	PB320S	3
IMPUR	25	60 600mg	0.05	PB320S	6
IMPUR	25	60 600mg	0.05	PB320S	9
IMPUR	25	60 600mg	0.05	PB320S	12
IMPUR	25	60 600mg	0.05	PB320S	18
IMPURTOT	25	60 600mg	0.05	PB321S	0
IMPURTOT	25	60 600mg	0.05	PB321S	3
IMPURTOT	25	60 600mg	0.05	PB321S	6
IMPURTOT	25	60 600mg	0.05	PB321S	9
IMPURTOT	25	60 600mg	0.05	PB321S	12
IMPURTOT	25	60 600mg	0.05	PB321S	18
IMPURTOT	25	60 600mg	0.05	PB322S	0
IMPURTOT	25	60 600mg	0.05	PB322S	3
IMPURTOT	25	60 600mg	0.05	PB322S	6
IMPURTOT	25	60 600mg	0.05	PB322S	9
IMPURTOT	25	60 600mg	0.05	PB322S	12
IMPURTOT	25	60 600mg	0.05	PB322S	18
IMPURTOT	25	60 600mg	0.05	PB321S	0
IMPURTOT	25	60 600mg	0.05	PB321S	3
IMPURTOT	25	60 600mg	0.05	PB321S	6
IMPURTOT	25	60 600mg	0.05	PB321S	9
IMPURTOT	25	60 600mg	0.05	PB321S	12
IMPURTOT	25	60 600mg	0.05	PB321S	18
IMPURTOT	25	60 600mg	0.05	PB322S	0
IMPURTOT	25	60 600mg	0.05	PB322S	3
IMPURTOT	25	60 600mg	0.05	PB322S	6
IMPURTOT	25	60 600mg	0.05	PB322S	9
IMPURTOT	25	60 600mg	0.05	PB322S	12
ASSAY	25	60 mg	0.05	PB322S	18
ASSAY	25	60 mg	0.05	PB304S	0
ASSAY	25	60 mg	0.05	PB304S	3
ASSAY	25	60 mg	0.05	PB304S	6
ASSAY	25	60 mg	0.05	PB304S	9
ASSAY	25	60 mg	0.05	PB304S	12
ASSAY	25	60 mg	0.05	PB304S	18
ASSAY	25	60 mg	0.05	PB304S	24
ASSAY	25	60 mg	0.05	PB314S	0
ASSAY	25	60 mg	0.05	PB314S	3
ASSAY	25	60 mg	0.05	PB314S	6
ASSAY	25	60 mg	0.05	PB314S	9
ASSAY	25	60 mg	0.05	PB314S	12
ASSAY	25	60 mg	0.05	PB314S	18
ASSAY	25	60 mg	0.05	PB314S	24
ASSAY	25	60 mg	0.05	PB315S	0
ASSAY	25	60 mg	0.05	PB315S	3

ASSAY	25	60	mg		0.05	2		PB315S	6
ASSAY	25	60	mg		0.05	2		PB315S	9
ASSAY	25	60	mg		0.05	2		PB315S	12
ASSAY	25	60	mg		0.05	2		PB315S	18
ASSAY	25	60	mg		0.05	2		PB315S	24
FRIABIL	25	60	mg		0.05	2		PB304S	0
FRIABIL	25	60	mg		0.05	2		PB304S	3
FRIABIL	25	60	mg		0.05	2		PB304S	6
FRIABIL	25	60	mg		0.05	2		PB304S	9
FRIABIL	25	60	mg		0.05	2		PB304S	12
FRIABIL	25	60	mg		0.05	2		PB304S	18
FRIABIL	25	60	mg		0.05	2		PB304S	24
FRIABIL	25	60	mg		0.05	2		PB314S	0
FRIABIL	25	60	mg		0.05	2		PB314S	3
FRIABIL	25	60	mg		0.05	2		PB314S	6
FRIABIL	25	60	mg		0.05	2		PB314S	9
FRIABIL	25	60	mg		0.05	2		PB314S	12
FRIABIL	25	60	mg		0.05	2		PB314S	18
FRIABIL	25	60	mg		0.05	2		PB314S	24
FRIABIL	25	60	mg		0.05	2		PB315S	0
FRIABIL	25	60	mg		0.05	2		PB315S	3
FRIABIL	25	60	mg		0.05	2		PB315S	6
FRIABIL	25	60	mg		0.05	2		PB315S	9
FRIABIL	25	60	mg		0.05	2		PB315S	12
FRIABIL	25	60	mg		0.05	2		PB315S	18
FRIABIL	25	60	mg		0.05	2		PB315S	24
HARD	25	60	mg		0.05	2		PB304S	0
HARD	25	60	mg		0.05	2		PB304S	3
HARD	25	60	mg		0.05	2		PB304S	6
HARD	25	60	mg		0.05	2		PB304S	9
HARD	25	60	mg		0.05	2		PB304S	12
HARD	25	60	mg		0.05	2		PB304S	18
HARD	25	60	mg		0.05	2		PB304S	24
HARD	25	60	mg		0.05	2		PB314S	0
HARD	25	60	mg		0.05	2		PB314S	3
HARD	25	60	mg		0.05	2		PB314S	6
HARD	25	60	mg		0.05	2		PB314S	9
HARD	25	60	mg		0.05	2		PB314S	12
HARD	25	60	mg		0.05	2		PB314S	18
HARD	25	60	mg		0.05	2		PB314S	24
HARD	25	60	mg		0.05	2		PB315S	0
HARD	25	60	mg		0.05	2		PB315S	3
HARD	25	60	mg		0.05	2		PB315S	6
HARD	25	60	mg		0.05	2		PB315S	9
HARD	25	60	mg		0.05	2		PB315S	12
HARD	25	60	mg		0.05	2		PB315S	18
HARD	25	60	mg		0.05	2		PB315S	24
IMPUR	25	60	mg		0.05	1		PB304S	0
IMPUR	25	60	mg		0.05	1		PB304S	3
IMPUR	25	60	mg		0.05	1		PB304S	6
IMPUR	25	60	mg		0.05	1		PB304S	9
IMPUR	25	60	mg		0.05	1		PB304S	12
IMPUR	25	60	mg		0.05	1		PB304S	18
IMPUR	25	60	mg		0.05	1		PB314S	0
IMPUR	25	60	mg		0.05	1		PB314S	3
IMPUR	25	60	mg		0.05	1		PB314S	6
IMPUR	25	60	mg		0.05	1		PB314S	9
IMPUR	25	60	mg		0.05	1		PB314S	12
IMPUR	25	60	mg		0.05	1		PB314S	18

IMPUR	25	60	mg		0.05	1	PB315S	0
IMPUR	25	60	mg		0.05	1	PB315S	3
IMPUR	25	60	mg		0.05	1	PB315S	6
IMPUR	25	60	mg		0.05	1	PB315S	9
IMPUR	25	60	mg		0.05	1	PB315S	12
IMPUR	25	60	mg		0.05	1	PB315S	18
IMPUR	25	60	mg		0.05	1	PB304S	0
IMPUR	25	60	mg		0.05	1	PB304S	3
IMPUR	25	60	mg		0.05	1	PB304S	6
IMPUR	25	60	mg		0.05	1	PB304S	9
IMPUR	25	60	mg		0.05	1	PB304S	12
IMPUR	25	60	mg		0.05	1	PB304S	18
IMPUR	25	60	mg		0.05	1	PB314S	0
IMPUR	25	60	mg		0.05	1	PB314S	3
IMPUR	25	60	mg		0.05	1	PB314S	6
IMPUR	25	60	mg		0.05	1	PB314S	9
IMPUR	25	60	mg		0.05	1	PB314S	12
IMPUR	25	60	mg		0.05	1	PB314S	18
IMPUR	25	60	mg		0.05	1	PB315S	0
IMPUR	25	60	mg		0.05	1	PB315S	3
IMPUR	25	60	mg		0.05	1	PB315S	6
IMPUR	25	60	mg		0.05	1	PB315S	9
IMPUR	25	60	mg		0.05	1	PB315S	12
IMPUR	25	60	mg		0.05	1	PB315S	18
IMPUR	25	60	mg		0.05	1	PB304S	0
IMPUR	25	60	mg		0.05	1	PB304S	3
IMPUR	25	60	mg		0.05	1	PB304S	6
IMPUR	25	60	mg		0.05	1	PB304S	9
IMPUR	25	60	mg		0.05	1	PB304S	12
IMPUR	25	60	mg		0.05	1	PB304S	18
IMPUR	25	60	mg		0.05	1	PB314S	0
IMPUR	25	60	mg		0.05	1	PB314S	3
IMPUR	25	60	mg		0.05	1	PB314S	6
IMPUR	25	60	mg		0.05	1	PB314S	9
IMPUR	25	60	mg		0.05	1	PB314S	12
IMPUR	25	60	mg		0.05	1	PB314S	18
IMPUR	25	60	mg		0.05	1	PB315S	0
IMPUR	25	60	mg		0.05	1	PB315S	3
IMPUR	25	60	mg		0.05	1	PB315S	6
IMPUR	25	60	mg		0.05	1	PB315S	9
IMPUR	25	60	mg		0.05	1	PB315S	12
IMPUR	25	60	mg		0.05	1	PB315S	18
IMPUR	25	60	mg		0.05	1	PB304S	0
IMPUR	25	60	mg		0.05	1	PB304S	3
IMPUR	25	60	mg		0.05	1	PB304S	6
IMPUR	25	60	mg		0.05	1	PB304S	9
IMPUR	25	60	mg		0.05	1	PB304S	12
IMPUR	25	60	mg		0.05	1	PB304S	18
IMPUR	25	60	mg		0.05	1	PB314S	0
IMPUR	25	60	mg		0.05	1	PB314S	3
IMPUR	25	60	mg		0.05	1	PB314S	6
IMPUR	25	60	mg		0.05	1	PB314S	9
IMPUR	25	60	mg		0.05	1	PB314S	12
IMPUR	25	60	mg		0.05	1	PB314S	18
IMPUR	25	60	mg		0.05	1	PB315S	0
IMPUR	25	60	mg		0.05	1	PB315S	3
IMPUR	25	60	mg		0.05	1	PB315S	6
IMPUR	25	60	mg		0.05	1	PB315S	9
IMPUR	25	60	mg		0.05	1	PB315S	12

IMPUR.	25	60	mg		0.05	1		PB315S	18
IMPURTOT	25	60	mg		0.05	1		PB304S	0
IMPURTOT	25	60	mg		0.05	1		PB304S	3
IMPURTOT	25	60	mg		0.05	1		PB304S	6
IMPURTOT	25	60	mg		0.05	1		PB304S	9
IMPURTOT	25	60	mg		0.05	1		PB304S	12
IMPURTOT	25	60	mg		0.05	1		PB304S	18
IMPURTOT	25	60	mg		0.05	1		PB314S	0
IMPURTOT	25	60	mg		0.05	1		PB314S	3
IMPURTOT	25	60	mg		0.05	1		PB314S	6
IMPURTOT	25	60	mg		0.05	1		PB314S	9
IMPURTOT	25	60	mg		0.05	1		PB314S	12
IMPURTOT	25	60	mg		0.05	1		PB314S	18
IMPURTOT	25	60	mg		0.05	1		PB315S	0
IMPURTOT	25	60	mg		0.05	1		PB315S	3
IMPURTOT	25	60	mg		0.05	1		PB315S	6
IMPURTOT	25	60	mg		0.05	1		PB315S	9
IMPURTOT	25	60	mg		0.05	1		PB315S	12
IMPURTOT	25	60	mg		0.05	1		PB315S	18
ASSAY	25	60	600mg		0.05	2		1E0804S	0
ASSAY	25	60	600mg		0.05	2		1E0804S	3
ASSAY	25	60	600mg		0.05	2		1E0804S	6
ASSAY	25	60	600mg		0.05	2		1G0805S	0
ASSAY	25	60	600mg		0.05	2		1G0805S	3
ASSAY	25	60	600mg		0.05	2		1G0805S	6
ASSAY	25	60	600mg		0.05	2		1G0806S	0
ASSAY	25	60	600mg		0.05	2		1G0806S	3
ASSAY	25	60	600mg		0.05	2		1G0806S	6
ASSAY	40	75	600mg		0.05	2		1E0804S	0
ASSAY	40	75	600mg		0.05	2		1E0804S	1
ASSAY	40	75	600mg		0.05	2		1E0804S	2
ASSAY	40	75	600mg		0.05	2		1E0804S	3
ASSAY	40	75	600mg		0.05	2		1E0804S	6
ASSAY	40	75	600mg		0.05	2		1G0805S	0
ASSAY	40	75	600mg		0.05	2		1G0805S	1
ASSAY	40	75	600mg		0.05	2		1G0805S	2
ASSAY	40	75	600mg		0.05	2		1G0805S	3
ASSAY	40	75	600mg		0.05	2		1G0805S	6
ASSAY	40	75	600mg		0.05	2		1G0806S	0
ASSAY	40	75	600mg		0.05	2		1G0806S	1
ASSAY	40	75	600mg		0.05	2		1G0806S	2
ASSAY	40	75	600mg		0.05	2		1G0806S	3
ASSAY	40	75	600mg		0.05	2		1G0806S	6
ASSAY	40	92	600mg		0.05	2		1E0804GA	0
ASSAY	91	92	600mg		0.05	2		1E0804GA	1
ASSAY	91	92	600mg		0.05	2		1E0804GA	2
ASSAY	91	92	600mg		0.05	2		1E0804GA	3
ASSAY	91	92	600mg		0.05	2		1E0804GA	6
ASSAY	91	92	600mg		0.05	2		1E804GR	0
ASSAY	91	92	600mg		0.05	2		1E804GR	3
ASSAY	91	92	600mg		0.05	2		1E804GR	6
ASSAY	91	92	600mg		0.05	2		1E804FA	0
ASSAY	91	92	600mg		0.05	2		1E804FA	1
ASSAY	91	92	600mg		0.05	2		1E804FA	2
ASSAY	91	92	600mg		0.05	2		1E804FA	3
ASSAY	91	92	600mg		0.05	2		1E804FA	6
ASSAY	91	92	600mg		0.05	2		1E804FR	0
ASSAY	91	92	600mg		0.05	2		1E804FR	3
ASSAY	91	92	600mg		0.05	2		1E804FR	6

ASSAY	40	75 600mg	0.05	2				1E0804A	0
ASSAY	40	75 600mg	0.05	2				1E0804A	1
ASSAY	40	75 600mg	0.05	2				1E0804A	2
ASSAY	40	75 600mg	0.05	2				1E0804A	3
ASSAY	40	75 600mg	0.05	2				1E0804A	6
ASSAY	40	75 600mg	0.05	2				1E0805A	0
ASSAY	40	75 600mg	0.05	2				1E0805A	1
ASSAY	40	75 600mg	0.05	2				1E0805A	2
ASSAY	40	75 600mg	0.05	2				1E0805A	3
ASSAY	40	75 600mg	0.05	2				1E0805A	6
ASSAY	40	75 600mg	0.05	2				1E0806A	0
ASSAY	40	75 600mg	0.05	2				1E0806A	1
ASSAY	40	75 600mg	0.05	2				1E0806A	2
ASSAY	40	75 600mg	0.05	2				1E0806A	3
ASSAY	40	75 600mg	0.05	2				1E0806A	6
ASSAY	25	60 600mg	0.05	2				1E0804A	0
ASSAY	25	60 600mg	0.05	2				1E0804A	3
ASSAY	25	60 600mg	0.05	2				1E0804A	6
ASSAY	25	60 600mg	0.05	2				1E0805A	0
ASSAY	25	60 600mg	0.05	2				1E0805A	3
ASSAY	25	60 600mg	0.05	2				1E0805A	6
ASSAY	25	60 600mg	0.05	2				1E0806A	0
ASSAY	25	60 600mg	0.05	2				1E0806A	3
ASSAY	25	60 600mg	0.05	2				1E0806A	6
HARD	25	60 600mg	0.05	2				1E0804S	0
HARD	25	60 600mg	0.05	2				1E0804S	3
HARD	25	60 600mg	0.05	2				1E0804S	6
HARD	25	60 600mg	0.05	2				1G0805S	0
HARD	25	60 600mg	0.05	2				1G0805S	3
HARD	25	60 600mg	0.05	2				1G0805S	6
HARD	25	60 600mg	0.05	2				1G0806S	0
HARD	25	60 600mg	0.05	2				1G0806S	3
HARD	25	60 600mg	0.05	2				1G0806S	6
HARD	40	75 600mg	0.05	2				1E0804S	0
HARD	40	75 600mg	0.05	2				1E0804S	1
HARD	40	75 600mg	0.05	2				1E0804S	2
HARD	40	75 600mg	0.05	2				1E0804S	3
HARD	40	75 600mg	0.05	2				1E0804S	6
HARD	40	75 600mg	0.05	2				1G0805S	0
HARD	40	75 600mg	0.05	2				1G0805S	1
HARD	40	75 600mg	0.05	2				1G0805S	2
HARD	40	75 600mg	0.05	2				1G0805S	3
HARD	40	75 600mg	0.05	2				1G0805S	6
HARD	40	75 600mg	0.05	2				1G0806S	0
HARD	40	75 600mg	0.05	2				1G0806S	1
HARD	40	75 600mg	0.05	2				1G0806S	2
HARD	40	75 600mg	0.05	2				1G0806S	3
HARD	40	75 600mg	0.05	2				1G0806S	6
HARD	40	75 600mg	0.05	2				1G0806S	0
HARD	91	92 600mg	0.05	2				1E804GA	0
HARD	91	92 600mg	0.05	2				1E804GA	1
HARD	91	92 600mg	0.05	2				1E804GA	2
HARD	91	92 600mg	0.05	2				1E804GA	3
HARD	91	92 600mg	0.05	2				1E804GA	6
HARD	91	92 600mg	0.05	2				1E804GR	0
HARD	91	92 600mg	0.05	2				1E804GR	3
HARD	91	92 600mg	0.05	2				1E804GR	6
HARD	91	92 600mg	0.05	2				1E804FA	0
HARD	91	92 600mg	0.05	2				1E804FA	1
HARD	91	92 600mg	0.05	2				1E804FA	2

HARD	91	92600mg	0.05	2		1E804FA	3
HARD	91	92600mg	0.05	2		1E804FA	6
HARD	91	92600mg	0.05	2		1E804FR	0
HARD	91	92600mg	0.05	2		1E804FR	3
HARD	91	92600mg	0.05	2		1E804FR	6
HARD	40	75600mg	0.05	2		1E0804A	0
HARD	40	75600mg	0.05	2		1E0804A	1
HARD	40	75600mg	0.05	2		1E0804A	2
HARD	40	75600mg	0.05	2		1E0804A	3
HARD	40	75600mg	0.05	2		1E0804A	6
HARD	40	75600mg	0.05	2		1E0805A	0
HARD	40	75600mg	0.05	2		1E0805A	1
HARD	40	75600mg	0.05	2		1E0805A	2
HARD	40	75600mg	0.05	2		1E0805A	3
HARD	40	75600mg	0.05	2		1E0805A	6
HARD	40	75600mg	0.05	2		1E0806A	0
HARD	40	75600mg	0.05	2		1E0806A	1
HARD	40	75600mg	0.05	2		1E0806A	2
HARD	40	75600mg	0.05	2		1E0806A	3
HARD	40	75600mg	0.05	2		1E0806A	6
HARD	25	60600mg	0.05	2		1E0804A	0
HARD	25	60600mg	0.05	2		1E0804A	3
HARD	25	60600mg	0.05	2		1E0804A	6
HARD	25	60600mg	0.05	2		1E0805A	0
HARD	25	60600mg	0.05	2		1E0805A	3
HARD	25	60600mg	0.05	2		1E0805A	6
HARD	25	60600mg	0.05	2		1E0806A	0
HARD	25	60600mg	0.05	2		1E0806A	3
HARD	25	60600mg	0.05	2		1E0806A	6
FRIABIL	25	60600mg	0.05	2		1E0804S	0
FRIABIL	25	60600mg	0.05	2		1E0804S	3
FRIABIL	25	60600mg	0.05	2		1E0804S	6
FRIABIL	25	60600mg	0.05	2		1G0805S	0
FRIABIL	25	60600mg	0.05	2		1G0805S	3
FRIABIL	25	60600mg	0.05	2		1G0805S	6
FRIABIL	25	60600mg	0.05	2		1G0806S	0
FRIABIL	25	60600mg	0.05	2		1G0806S	3
FRIABIL	25	60600mg	0.05	2		1G0806S	6
FRIABIL	40	75600mg	0.05	2		1E0804S	0
FRIABIL	40	75600mg	0.05	2		1E0804S	1
FRIABIL	40	75600mg	0.05	2		1E0804S	2
FRIABIL	40	75600mg	0.05	2		1E0804S	3
FRIABIL	40	75600mg	0.05	2		1E0804S	6
FRIABIL	40	75600mg	0.05	2		1G0805S	0
FRIABIL	40	75600mg	0.05	2		1G0805S	1
FRIABIL	40	75600mg	0.05	2		1G0805S	2
FRIABIL	40	75600mg	0.05	2		1G0805S	3
FRIABIL	40	75600mg	0.05	2		1G0805S	6
FRIABIL	40	75600mg	0.05	2		1G0806S	0
FRIABIL	40	75600mg	0.05	2		1G0806S	1
FRIABIL	40	75600mg	0.05	2		1G0806S	2
FRIABIL	40	75600mg	0.05	2		1G0806S	3
FRIABIL	40	75600mg	0.05	2		1G0806S	6
FRIABIL	91	92600mg	0.05	2		1E804GA	0
FRIABIL	91	92600mg	0.05	2		1E804GA	1
FRIABIL	91	92600mg	0.05	2		1E804GA	2
FRIABIL	91	92600mg	0.05	2		1E804GA	3
FRIABIL	91	92600mg	0.05	2		1E804GA	6
FRIABIL	91	92600mg	0.05	2		1E804GR	0

FRIABIL	91	92 600mg	0.05	2			1E804GR	3
FRIABIL	91	92 600mg	0.05	2			1E804GR	6
FRIABIL	91	92 600mg	0.05	2			1E804FA	0
FRIABIL	91	92 600mg	0.05	2			1E804FA	1
FRIABIL	91	92 600mg	0.05	2			1E804FA	2
FRIABIL	91	92 600mg	0.05	2			1E804FA	3
FRIABIL	91	92 600mg	0.05	2			1E804FA	6
FRIABIL	91	92 600mg	0.05	2			1E804FR	0
FRIABIL	91	92 600mg	0.05	2			1E804FR	3
FRIABIL	91	92 600mg	0.05	2			1E804FR	6
FRIABIL	40	75 600mg	0.05	2			1E0804A	0
FRIABIL	40	75 600mg	0.05	2			1E0804A	1
FRIABIL	40	75 600mg	0.05	2			1E0804A	2
FRIABIL	40	75 600mg	0.05	2			1E0804A	3
FRIABIL	40	75 600mg	0.05	2			1E0804A	6
FRIABIL	40	75 600mg	0.05	2			1E0805A	0
FRIABIL	40	75 600mg	0.05	2			1E0805A	1
FRIABIL	40	75 600mg	0.05	2			1E0805A	2
FRIABIL	40	75 600mg	0.05	2			1E0805A	3
FRIABIL	40	75 600mg	0.05	2			1E0805A	6
FRIABIL	40	75 600mg	0.05	2			1E0806A	0
FRIABIL	40	75 600mg	0.05	2			1E0806A	1
FRIABIL	40	75 600mg	0.05	2			1E0806A	2
FRIABIL	40	75 600mg	0.05	2			1E0806A	3
FRIABIL	40	75 600mg	0.05	2			1E0806A	6
FRIABIL	25	60 600mg	0.05	2			1E0804A	0
FRIABIL	25	60 600mg	0.05	2			1E0804A	3
FRIABIL	25	60 600mg	0.05	2			1E0804A	6
FRIABIL	25	60 600mg	0.05	2			1E0805A	0
FRIABIL	25	60 600mg	0.05	2			1E0805A	3
FRIABIL	25	60 600mg	0.05	2			1E0805A	6
FRIABIL	25	60 600mg	0.05	2			1E0806A	0
FRIABIL	25	60 600mg	0.05	2			1E0806A	3
FRIABIL	25	60 600mg	0.05	2			1E0806A	6

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this page is the manifestation of the electronic signature.**

/s/

Ted Guo  
7/3/02 01:24:26 PM  
BIOMETRICS

Lisa A. Kammerman  
7/3/02 03:13:59 PM  
BIOMETRICS  
I concur with review